

**Management of Highly Pathogenic Avian Influenza H5N1 Virus:
Policy for Impact and Management of Swine
(USDA Draft, 2006)**

The United States Department of Agriculture (USDA) has undertaken numerous measures to prepare for, prevent and respond to the possibility of an outbreak of highly pathogenic avian influenza (HPAI, H5N1) in poultry and other possibly susceptible species in the United States. Preparations for a possible HPAI, H5N1 outbreak include international and domestic coordination, information dissemination, enhancing response strategies, monitoring for the presence of HPAI, heightening disease awareness, and ensuring resources and personnel will be readily available.

In enhancing our animal health response plans to contribute to a comprehensive national preparedness plan, issues regarding non-traditional species of animals susceptible to HPAI, H5N1 should be considered. This policy paper is intended to ensure any possible gaps in our national preparedness and response planning related to swine are considered and eliminated. In this policy, we provide guidance on dealing with swine if H5N1 is detected in the U.S. in humans, poultry, or swine.

Use of vaccines

Currently, APHIS has licensed 5 different establishments for production of commercial Swine Influenza vaccines. These 5 establishments produce 16 different products, many in combination with other disease protective antigens. At present, APHIS has approved H1 and H3 types of swine influenza for commercial use in vaccinating domestic swine in the United States. At this time, APHIS has no plans to use the stockpiled H5 avian influenza vaccine for use in swine in the event of a highly pathogenic avian influenza (HPAI) incident in the United States. Stockpiled vaccine would be used to control the spread and contain an outbreak within poultry. APHIS is considering modeling different HPAI scenarios and will analyze each situation carefully to determine the best strategy for use of limited resources and containment of the disease agent, regardless of species.

Operational Response Policy

Response to HPAI H5N1 will be dependent on the epidemiology of the situation at the time of the outbreak. We envision any one of 5 possible situations that we need to be prepared for:

1. Poultry infection without human or swine involvement
2. Swine infection without human or poultry involvement
3. Human infection without poultry or swine involvement
4. Human and poultry infection with no swine involvement
5. Human, poultry and swine infection (same for human and swine, with no poultry involvement)

1. POULTRY INFECTION WITHOUT HUMAN OR SWINE INVOLVEMENT

- a. Typical HPAI disease eradication effort such as that conducted in Pennsylvania in 1983 or Texas in 2003.
- b. Close collaboration with Health and Human Services.
- c. Use the National Response Plan to coordinate efforts.

- d. Initially, establish a quarantine of poultry farms 10km around infected premises.
- e. Create a case definition for swine.
- f. Conduct an epidemiologic investigation to determine the source and extent of situation.
- g. Active surveillance of swine and poultry within infected and surveillance zones. The extent of surveillance within zones would be determined by evaluation of swine/poultry interfaces that pose potential risk of virus spread.
- h. Education of and reporting by swine producers of illnesses in swine in infected and surveillance areas through the foreign animal disease surveillance procedures.
- i. Passive surveillance of other susceptible species including swine in infected areas.
- j. Appraisal, depopulation and disposal will be conducted with strict biosecurity measures of infected poultry flocks.

2. SWINE INFECTION WITHOUT HUMAN OR POULTRY INVOLVEMENT

- a. Swine infection with H5N1 discovery by incidental finding on routine diagnosis of other swine influenza strains. While H5 in swine would be rare, its finding would require control, monitoring, and elimination.
- b. Close collaboration with Health and Human Services.
- c. Use the National Response Plan to coordinate efforts.
- d. Initially, establish a quarantine of swine farms 10km around infected premises.
- e. Create a case definition for poultry.
- f. Conduct an epidemiologic investigation to determine the source and extent of situation.
- g. Active surveillance of swine and poultry within infected and surveillance zones. The extent of surveillance within zones would be determined by evaluation of swine/poultry interfaces that pose potential risk of virus spread.
- h. Education of and reporting by swine producers of illnesses in swine in infected and surveillance areas.
- i. Passive surveillance of other susceptible species, as well as swine, in infected areas.
- j. Appraisal, depopulation and disposal will be conducted with strict biosecurity measures of infected swine herds.
- k. Influenza virus vaccination of swine farm workers -- The vaccines produced on a yearly basis for the human population contain only human, not swine, strains of influenza viruses. Nonetheless, these vaccines are likely to provide some level of protection against infection with swine viruses of the same hemagglutinin subtype. Conversely, vaccination of farm workers will reduce the amounts of viruses they shed if infected during human influenza outbreaks, and thereby limit the potential for human influenza virus transmission to pigs.
- l. Sick-leave policies -- To further reduce the chances for infection of pigs with human influenza viruses, the farm owner should provide sick-leave policies

for employees that encourage them to remain away from work when they are suffering from acute respiratory infections. People typically shed influenza viruses for approximately 3-7 days, with the period of peak shedding correlated with the time of most severe clinical illness.

- m. Ventilation -- Ventilation systems in containment production facilities should be designed to minimize re-circulation of air within animal housing rooms. This is important to reduce the exposure of pigs to viruses from other pigs, to reduce their exposure to human influenza viruses, and conversely, to reduce exposure of workers to swine influenza viruses.
- n. Basic hygiene practices -- Workers should change clothes prior to leaving swine barns for office facilities, food breaks, or their homes. In addition, hand-to-face contact should be minimized, and hand-washing stations should be available throughout the animal housing areas.

3. HUMAN INFECTION WITHOUT POULTRY OR SWINE INVOLVEMENT

- a. Typical human influenza situation but with a human adapted H5N1 strain.
- b. Close collaboration with Health and Human Services.
- c. Use the National Response Plan to coordinate efforts.
- d. Create a case definition for poultry and swine.
- e. Influenza virus vaccination of swine farm workers -- The vaccines produced on a yearly basis for the human population contain only human, not swine, strains of influenza viruses. Nonetheless, these vaccines are likely to provide some level of protection against infection with swine viruses of the same hemagglutinin subtype. Conversely, vaccination of farm workers will reduce the amounts of viruses they shed if infected during human influenza outbreaks, and thereby limit the potential for human influenza virus infection of their pigs.
- f. Sick-leave policies -- To further reduce the chances for infection of pigs with human influenza viruses, the farm owner should provide sick-leave policies for employees that encourage them to remain away from work when they are suffering from acute respiratory infections. People typically shed influenza viruses for approximately 3-7 days, with the period of peak shedding correlated with the time of most severe clinical illness.
- g. Ventilation -- Ventilation systems in containment production facilities should be designed to minimize re-circulation of air within animal housing rooms. This is important to reduce the exposure of pigs to viruses from other pigs, to reduce their exposure to human influenza viruses, and conversely, to reduce exposure of workers to swine influenza viruses.
- h. Basic hygiene practices -- Workers should change clothes prior to leaving swine barns for office facilities, food breaks, or their homes. In addition, hand-to-face contact should be minimized, and hand-washing stations should be available throughout the animal housing areas.

4. HUMAN AND POULTRY INFECTION WITH NO SWINE INVOLVEMENT

- a. Close collaboration with Health and Human Services.
- b. Use the National Response Plan to coordinate efforts.
- c. Initially, quarantine poultry 10km around infected premises.

- d. Create a case definition for swine.
- e. Monitor possible susceptible species, including swine, in infected area.
- f. Conduct an epidemiologic investigation to determine the source and extent of situation.
- g. Active surveillance of poultry within infected and surveillance zones. The Extent of surveillance within zones would be determined by evaluation of swine/poultry interfaces that pose potential risk of virus spread.
- h. Education of and reporting by swine producers of illnesses in swine in infected and surveillance areas.
- i. Passive surveillance of other susceptible species including swine in infected areas.
- j. Appraisal, depopulation, and disposal will be conducted with strict biosecurity measures of infected poultry flocks,

5. HUMAN, POULTRY, AND SWINE INFECTION¹

- a. Close collaboration with Health and Human Services.
- b. Use the National Response Plan to coordinate efforts.
- c. Create a case definition for poultry and swine.
- d. Follow worker safety guidelines developed in coordination with CDC
- e. Personal Protective Equipment (PPE) will be used as a barrier between an individual and a hazard that could result in an injury or occupational illness for employees working on swine or poultry premises to reduce potential transmission and spread of the disease. This would include the use of antiviral drugs which will be administered to responders.
- f. Influenza virus vaccination of swine farm workers -- The vaccines produced on a yearly basis for the human population contain only human, not swine, strains of influenza viruses. Nonetheless, these vaccines are likely to provide some level of protection against infection with swine viruses of the same hemagglutinin subtype. Conversely, vaccination of farm workers will reduce the amounts of viruses they shed if infected during human influenza outbreaks, and thereby limit the potential for human influenza virus infection of their pigs.
- g. Sick-leave policies -- To further reduce the chances for infection of pigs with human influenza viruses, the farm owner should provide sick-leave policies for employees that encourage them to remain away from work when they are suffering from acute respiratory infections. People typically shed influenza viruses for approximately 3-7 days, with the period of peak shedding correlated with the time of most severe clinical illness.
- h. Ventilation -- Ventilation systems in containment production facilities should be designed to minimize re-circulation of air within animal housing rooms. This is important to reduce the exposure of pigs to viruses from other pigs, to reduce their exposure to human influenza viruses, and conversely, to reduce exposure of workers to swine influenza viruses.

¹ Same for human and swine infection with no poultry involvement except we would not be quarantining poultry facilities

- i. Basic hygiene practices -- Workers should change clothes prior to leaving swine barns for office facilities, food breaks, or their homes. In addition, hand-to-face contact should be minimized, and hand-washing stations should be available throughout the animal housing areas.
- j. Initially, quarantine swine and poultry 10km around infected premises.
- k. Conduct an epidemiologic investigation to determine the source and extent of situation.
- l. Active surveillance of poultry and swine in the surveillance and infected zones. Extent of surveillance within zones would be determined by evaluation of swine/poultry interfaces that pose potential risk of virus spread.
- m. Education of and reporting by swine producers of illnesses in swine in infected and surveillance areas.
- n. Surveillance of other susceptible species including swine and poultry in infected areas, as well as of swine outside the infected zones, using the Classical Swine Fever surveillance system to include swabs of clinically ill market swine through the NAHLN network, with reporting of H5N1 isolates to USDA.
- o. Appraisal, depopulation and disposal will be conducted with strict biosecurity measures of infected poultry flocks and swine herds.